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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/775,342	02/11/2004	Guy Peter Bryan-Brown	124-1062	8551
23117	7590	09/21/2006	EXAMINER	
NIXON & VANDERHYE, PC 901 NORTH GLEBE ROAD, 11TH FLOOR ARLINGTON, VA 22203			SCHECHTER, ANDREW M	
			ART UNIT	PAPER NUMBER
			2871	

DATE MAILED: 09/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/775,342

Applicant(s)

BRYAN-BROWN ET AL.

Examiner

Andrew Schechter

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 June 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 17-36 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 32-35 and 37 is/are allowed.
- 6) ☒ Claim(s) 17-31 and 36 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☒ Certified copies of the priority documents have been received in Application No. 09/043,788.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Continued Examination***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 22 June 2006 has been entered.

### ***Response to Arguments***

2. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

The previous rejections in view of *Nobili*, *Tsuda*, and *Li* have been overcome by the amendments to the claims.

The applicant argues that the invention of claim 32 differs from *Boyd* in that *Boyd* has bulk-stabilized bistability while the invention has bistability provided by a first surface (or "two different surface-stabilized pretilt angles" as recited in dependent claim 37). As regards the claim language, either "a first surface that provides two different pretilt angles" in claim 32 or "surface-stabilized" in claim 37, the examiner understands it to mean that the scope of the claim is limited to those devices where, after the second substrate is removed, there are two different stable pretilt angles on the first substrate.

The first and second substrates in *Boyd* are prepared (in a variety of ways) in order to provide two stable liquid crystal configurations between them. *Boyd* states that “[m]echanically stable liquid crystal configurations are achieved by providing appropriate boundary conditions on the surfaces of the substrates” [col. 1, lines 36-39], etc., so it stands to reason that the substrates are prepared so as to jointly achieve the bistability, rather than designed to have the bistability feature independently. There does not appear to be any discussion within *Boyd* of separate bistability attributable to a single substrate. Therefore, the rejections in view of *Boyd* are withdrawn.

### ***Double Patenting***

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 17, 18, and 36 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 13 of U.S. Patent No. 7,053,975 to *Wood et al.* Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 13 anticipates claims 17, 18, and 36.

5. Claims 19-25 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 13 of U.S. Patent No. 7,053,975 to *Wood et al.* in view of *Tsuboyama et al.*, U.S. Patent No. 4,775,225 and *Wenz et al.*, U.S. Patent No. 5,268,782. Although the conflicting claims are not identical, they are not patentably distinct from each other because in claims 19 and 20, nematic or long pitch cholesteric liquid crystal material would have been obvious to one of ordinary skill in the art at the time of the invention (of which the examiner takes official notice), and with respect to the pillar(s):

*Tsuboyama* discloses having such pillars [307] in an analogous device. It would have been obvious to one of ordinary skill in the art at the time of the invention to have such pillars, motivated by *Tsuboyama's* teaching that such spacers maintain a cell gap and provide good bistability free of orientation defects [col. 2, lines 34-38]. Claim 21 is therefore unpatentable.

The height of *Tsuboyama's* pillars is given as 1  $\mu\text{m}$  [col. 13, line 35] and the width of such pillars was in the range 5-50  $\mu\text{m}$  or greater than 50  $\mu\text{m}$  [see Table 1], so claims 22-24 are also unpatentable.

Using beads dispersed in the liquid crystal, to act as spacers or to electrically connect the two substrates, would have been obvious to one of ordinary skill in the art

at the time of the invention (of which the examiner takes official notice), so claim 25 is also unpatentable.

6. Claims 26-31 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 8 of U.S. Patent No. 6,696,110 to *Tuffin et al.*, in view of *Tsuboyama et al.*, U.S. Patent No. 4,775,225 and *Wenz et al.*, U.S. Patent No. 5,268,782.

Claim 8 discloses the recited features of claims 26-31, except for the patterned surface profile comprising at least one pillar, and the features of the pillar(s) in the dependent claims.

*Tsuboyama* discloses having such pillars [307] in an analogous device. It would have been obvious to one of ordinary skill in the art at the time of the invention to have such pillars, motivated by *Tsuboyama*'s teaching that such spacers maintain a cell gap and provide good bistability free of orientation defects [col. 2, lines 34-38]. Claim 26 is therefore unpatentable.

The height of *Tsuboyama*'s pillars is given as 1  $\mu\text{m}$  [col. 13, line 35] and the width of such pillars was in the range 5-50  $\mu\text{m}$  or greater than 50  $\mu\text{m}$  [see Table 1], so claims 27-29 are also unpatentable.

The two configurations are optically distinguishable, so claim 31 is also unpatentable.

*Wenz* discloses embossing such microstructures. It would have been obvious to one of ordinary skill in the art at the time of the invention to do so, motivated by the efficiency of mass production using embossing to produce such pillars. Claim 30 is

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therefore unpatentable. Also, note that this limitation is a product-by-process limitation, where the scope is limited only by the structure, not the steps performed, so claim 30 would be unpatentable even without the teaching of *Wenz* because the structure is not affected by the process limitation. Claim 30 is therefore unpatentable.

7. Claims 26-31 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 7,053,975 to *Wood et al.*, in view of *Tsuboyama et al.*, U.S. Patent No. 4,775,225 and *Wenz et al.*, U.S. Patent No. 5,268,782.

Claim 1 discloses the recited features of claims 26-31, except for the patterned surface profile comprising at least one pillar, and the features of the pillar(s) in the dependent claims.

*Tsuboyama* discloses having such pillars [307] in an analogous device. It would have been obvious to one of ordinary skill in the art at the time of the invention to have such pillars, motivated by *Tsuboyama*'s teaching that such spacers maintain a cell gap and provide good bistability free of orientation defects [col. 2, lines 34-38]. Claim 26 is therefore unpatentable.

The height of *Tsuboyama*'s pillars is given as 1  $\mu\text{m}$  [col. 13, line 35] and the width of such pillars was in the range 5-50  $\mu\text{m}$  or greater than 50  $\mu\text{m}$  [see Table 1], so claims 27-29 are also unpatentable.

The two configurations are optically distinguishable, so claim 31 is also unpatentable.

*Wenz* discloses embossing such microstructures. It would have been obvious to one of ordinary skill in the art at the time of the invention to do so, motivated by the efficiency of mass production using embossing to produce such pillars. Claim 30 is therefore unpatentable. Also, note that this limitation is a product-by-process limitation, where the scope is limited only by the structure, not the steps performed, so claim 30 would be unpatentable even without the teaching of *Wenz* because the structure is not affected by the process limitation. Claim 30 is therefore unpatentable.

8. Claims 26-31 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 18 of U.S. Patent Application No. 10/538,788, in view of *Tsuboyama et al.*, U.S. Patent No. 4,775,225 and *Wenz et al.*, U.S. Patent No. 5,268,782.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim 18 discloses the recited features of claims 26-31, except for the patterned surface profile comprising at least one pillar, and the features of the pillar(s) in the dependent claims.

*Tsuboyama* discloses having such pillars [307] in an analogous device. It would have been obvious to one of ordinary skill in the art at the time of the invention to have such pillars, motivated by *Tsuboyama*'s teaching that such spacers maintain a cell gap and provide good bistability free of orientation defects [col. 2, lines 34-38]. Claim 26 is therefore unpatentable.



The height of *Tsuboyama*'s pillars is given as 1  $\mu\text{m}$  [col. 13, line 35] and the width of such pillars was in the range 5-50  $\mu\text{m}$  or greater than 50  $\mu\text{m}$  [see Table 1], so claims 27-29 are also unpatentable.

The two configurations are optically distinguishable, so claim 31 is also unpatentable.

*Wenz* discloses embossing such microstructures. It would have been obvious to one of ordinary skill in the art at the time of the invention to do so, motivated by the efficiency of mass production using embossing to produce such pillars. Claim 30 is therefore unpatentable. Also, note that this limitation is a product-by-process limitation, where the scope is limited only by the structure, not the steps performed, so claim 30 would be unpatentable even without the teaching of *Wenz* because the structure is not affected by the process limitation. Claim 30 is therefore unpatentable.

9. Claims 26-31 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 20 of U.S. Patent Application No. 10/538,638, in view of *Tsuboyama et al.*, U.S. Patent No. 4,775,225 and *Wenz et al.*, U.S. Patent No. 5,268,782.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim 20 discloses the recited features of claims 26-31, except for the patterned surface profile comprising at least one pillar, and the features of the pillar(s) in the dependent claims.

*Tsuboyama* discloses having such pillars [307] in an analogous device. It would have been obvious to one of ordinary skill in the art at the time of the invention to have such pillars, motivated by *Tsuboyama*'s teaching that such spacers maintain a cell gap and provide good bistability free of orientation defects [col. 2, lines 34-38]. Claim 26 is therefore unpatentable.

The height of *Tsuboyama*'s pillars is given as 1  $\mu\text{m}$  [col. 13, line 35] and the width of such pillars was in the range 5-50  $\mu\text{m}$  or greater than 50  $\mu\text{m}$  [see Table 1], so claims 27-29 are also unpatentable.

The two configurations are optically distinguishable, so claim 31 is also unpatentable.

*Wenz* discloses embossing such microstructures. It would have been obvious to one of ordinary skill in the art at the time of the invention to do so, motivated by the efficiency of mass production using embossing to produce such pillars. Claim 30 is therefore unpatentable. Also, note that this limitation is a product-by-process limitation, where the scope is limited only by the structure, not the steps performed, so claim 30 would be unpatentable even without the teaching of *Wenz* because the structure is not affected by the process limitation. Claim 30 is therefore unpatentable.

### ***Allowable Subject Matter***

10. Claim 32-37 are allowed.

11. The following is a statement of reasons for the indication of allowable subject matter:

The prior art does not disclose the device of claim 32, in particular the limitations of an LCD being latchable between two stable liquid crystal configurations, having a cell wall with a first surface that provides two different pretilt angles in the same azimuthal plane, the first stable configuration being twisted. Claim 32 is therefore allowed, as are its dependent claims 33-37.


Claims 17-31 and 36 would be allowable if the double patenting rejections were overcome appropriately. Claims 17 and 36 recite a bistable nematic LCD with a first surface giving bistable pretilt zenithal angles and a second surface giving monostability, so these would be allowable along with their dependent claims. Claim 26 recites a bistable LCD with patterned surface profile comprising a pillar, and a first surface to provide two different pretilt zenithal angles in the same azimuthal plane, so claim 26 would be allowable along with its dependent claims.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Schechter whose telephone number is (571) 272-2302. The examiner can normally be reached on Monday - Friday, 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Nelms can be reached at (571) 272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Andrew Schechter  
Primary Examiner  
Technology Center 2800  
14 September 2006